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## Expression of a bacterial modification methylase gene in yeast.

**Fehér Z, Kiss A, Venetianer P.**

Methylation of specific cytosines in the DNA is generally believed to play some role in the regulation of gene expression in eukaryotes. However, some eukaryotes, such as *Drosophila* and yeast (S. Hattman, personal communication) seem not to contain 5-methylcytosine in their DNA. It would be interesting to test, how gene expression in such organisms would respond to the methylation of specific cytosines in the genome. As a first step toward this goal, we have introduced the gene encoding the *Bacillus sphaericus* R modification methylase, which methylates the internal cytosine within the recognition sequence 5'-GGCC, into yeast cells. Southern-type hybridization to DNAs isolated from the transformed yeast clones revealed that the yeast plasmid carrying the prokaryotic methylase gene, as well as the two chromosomal genes tested (*his3* and *leu2*) were methylated, whereas the bulk of the yeast DNA remained largely unmethylated. This indicates that the *Bacillus sphaericus* modification methylase was expressed in yeast but it modified only certain parts of the yeast DNA.

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